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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/510,886	03/08/2005	Andreas-Juergen Rohatschek	10191/3586	2485
26646	7590	12/06/2005		
KENYON & KENYON ONE BROADWAY NEW YORK, NY 10004			EXAMINER HOANG, JOHNNY H	
			ART UNIT	PAPER NUMBER
			3747	

DATE MAILED: 12/06/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/510,886

Applicant(s)

ROHATSCHEK, ANDREAS-JUERGEN

Examiner

Johnny H. Hoang

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 08 March 2005.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 10-21 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 10-21 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 October 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 10/08/04.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 10-17, and 19-21 are rejected under 35 U.S.C. 102(b) as being anticipated by Egger et al (US 6,109,245).

The reference of Egger et al discloses an apparatus and method for driving a piezoelectrically controlled fuel injection valve including the following subject matters:

at least two piezoelectrically actuator elements, at least one piezoelectrically actuator element assigned to each cylinder to inject fuel into the cylinder (col. 2, lines 63-66); and

an injection control system (ST) configured to at least one of (a) monitor and (b) resolve a conflict in trigger of the at least two actuator elements, the injection control configured to trigger the at least two piezoelectrically actuator elements as a function of predefinable time intervals that are a function of a trigger characteristic of at least one of the at least two piezoelectrically actuator elements (col. 3, lines 4-65).

3. Claims 10-17, and 19-21 are rejected under 35 U.S.C. 102(b) as being anticipated by Verheyen et al (US 5,130,598).

The reference of Verheyen et al discloses an apparatus for driving a piezoelectric actuator including:

plurality of piezoelectric elements assigned to cylinder to inject fuel into the cylinder (col. 3, lines 38-65).

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an injection control system (213) configured to at least one of (a) monitor and (b) resolve a conflict in trigger of the at least two actuator elements, the injection control configured to trigger the at least two piezoelectric actuator elements as a function of predefinable time intervals that are a function of a trigger characteristic of at least one of the at least two piezoelectric actuator elements (col. 4, line 4 through col. 5, line 17; and col. 7, line 40 through col. 8, line 68).

4. Claims 10-17, and 19-21 are rejected under 35 U.S.C. 102(b) as being anticipated by Mitsuyasu et al (US 4,688,536).

The reference of Mitsuyasu et al discloses a plurality of piezoelectric elements used as electrostrictive actuator (see abstract), and the fuel injection control procedure (see the specification of the invention and Figs. 2-5).

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claims 10-21 are rejected under 35 U.S.C. 102(e) as being anticipated by Rueger et al (US 6,564,771 B2).

The applied reference has a common **assignee: Robert Bosch GmbH** with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference

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was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

Regarding claim 10, the reference of Rueger et al discloses the fuel injection system for internal combustion engine including the following subject matters:

at least two actuator elements, at least one actuator element assigned to each cylinder to inject fuel into the cylinder (see abstract and claim 1); and

an injection control system configured to at least one of (a) monitor and (b) resolve a conflict in trigger of the at least two actuator elements (see abstract and claim 1), the injection control configured to trigger the at least two actuator elements as a function of predefinable time intervals that are a function of a trigger characteristic of at least one of the at least two actuator elements (col. 4, lines 1-16, lines 48-58; and claim 5).

Regarding claim 11, the reference of Rueger et al teaches in claim 2.

Regarding claim 12, the reference of Rueger et al teaches in claim 3.

Regarding claim 19, the reference of Rueger et al teaches in claim 1.

Regarding claim 13, the reference of Rueger et al teaches the following subject matters:

at least two piezoelectric elements, at least one piezoelectric element assigned to each cylinder to inject fuel into the cylinder by one of (a) charging and (b) discharging the at least one piezoelectric element, a single supply unit assigned to the at least two piezoelectric elements to one of (a) charge and (b) discharge the at least two piezoelectric elements (see claim 4);

an injection control system configured to monitor possible overlap of a time interval during which one of the at least two piezoelectric elements is to be one of (a) charged and (b) discharged with a time interval during which another of the at least two piezoelectric elements is to be one of (a) charged and (b) discharged (see claim 4), and at least two injections have

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different priorities assigned, one injection assigned a higher priority than at least one other injection having a lower priority (col. 10, line 66 through col. 11, line 24);

wherein the injection control is configured to shorten the at least one injection having the lower priority by a predefinable time interval as a function of a time characteristic of the charge and discharge of at least one of the at least two piezoelectric elements, the injector control configured so that the piezoelectric element having the lower priority is not charged when the other piezoelectric element having the higher priority is to be one of (a) charged and (b) discharged (col. 11, line 25 through col. 12, line 11).

Regarding claim 14, the reference of Rueger et al teaches in claims 5-13.

Claims 15, and 16 are rejected the same reasons of claims 13, and 14.

Regarding claim 20, the reference of Rueger et al teaches in claim 1.

Claims 17, 18, and 21 are rejected the same reasons of above rejected claims.

### ***Conclusion***

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Heinzelmann (US 6,659,072 B2).

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Johnny H. Hoang whose telephone number is (571) 272-4843. The examiner can normally be reached on Monday - Thursday (7:00Am-5: 30Pm).


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Henry Yuen can be reached on (571) 272-4856.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JHH  
November 29, 2005

Johnny H. Hoang  
Examiner  
Art Unit 3747

  
Andrew M. Dolinar  
Primary Examiner